

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**Permitting and Compliance Division
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Montana Refining Company
NE¼, Section 1, Township 20 North, Range 3 East, Cascade County
1900 10th Street North East
Great Falls, MT 59404

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		Methods 5, 6, 7, 9, 10, and 22
Ambient Monitoring Required	X		
COMS Required		X	
CEMS Required	X		
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		
Monthly Reporting Required		X	
Quarterly Reporting Required	X		
Applicable Air Quality Programs			
ARM Subchapter 7 Preconstruction Permitting	X		2161-17
New Source Performance Standards (NSPS)	X		40 CFR 60, Subparts GGG, QQQ, and Kb 40 CFR 61, Subpart FF
National Emission Standards for Hazardous Air Pollutants (NESHAPS)	X		40 CFR 61, Subpart M and FF
Maximum Achievable Control Technology (MACT)	X		40 CFR 63, Subpart CC
Major New Source Review (NSR/PSD)	X		
Risk Management Plan Required (RMP)	X		
Acid Rain Title IV		X	
State Implementation Plan (SIP)	X		General Montana SIP

TABLE OF CONTENTS

SECTION I	GENERAL INFORMATION.....	1
A.	PURPOSE.....	1
B.	FACILITY LOCATION.....	1
C.	FACILITY BACKGROUND INFORMATION	1
D.	CURRENT PERMIT ACTION	6
E.	TAKING AND DAMAGING ANALYSIS.....	6
F.	COMPLIANCE DESIGNATION	7
SECTION II	SUMMARY OF EMISSION UNITS.....	8
A.	FACILITY PROCESS DESCRIPTION	8
B.	EMISSION UNITS AND POLLUTION CONTROL DEVICE IDENTIFICATION	8
C.	CATEGORICALLY INSIGNIFICANT SOURCES/ACTIVITIES	9
SECTION III	PERMIT CONDITIONS.....	10
A.	EMISSION LIMITS AND STANDARDS	10
B.	MONITORING REQUIREMENTS	10
C.	TEST METHODS AND PROCEDURES.....	11
D.	RECORDKEEPING REQUIREMENTS	11
E.	REPORTING REQUIREMENTS.....	11
F.	PUBLIC NOTICE	12
G.	DRAFT PERMIT COMMENTS	12
SECTION IV	NON-APPLICABLE REQUIREMENT ANALYSIS	13
SECTION V	FUTURE PERMIT CONSIDERATIONS.....	14
A.	MACT STANDARDS	14
B.	NESHAP STANDARDS	14
C.	NSPS STANDARDS	14
D.	RISK MANAGEMENT PLAN	14

SECTION I GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit proposed for this facility. The document is intended for reference during review of the proposed permit by the U.S. Environmental Protection Agency (EPA) and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit. Conclusions in this document are based on information provided in the original application submitted by the Montana Refining Company (MRC) on 5/17/95 and additional submittals on 7/3/95, 10/26/95, 4/14/98, 6/29/99, 7/22/99, 4/4/00, 5/4/00, 8/4/01, 8/17/02, 3/19/03, 7/10/03, and 5/3/04.

B. Facility Location

MRC operates the Great Falls refinery, which is located along the Missouri River in Great Falls, Montana. This facility is located in the NE¼ of Section 1, Township 20 North, Range 3 East, in Cascade County, Montana. Cascade County is designated as an Unclassifiable/Attainment area for National Ambient Air Quality Standards (NAAQS) for all criteria pollutants with the exception of CO. Great Falls is designated as a CO nonattainment area. As of July 8, 2002, Cascade County is designated as an Unclassifiable/Attainment area for National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The area lies in a region that is transitional between mountains to the west and plains to the east. Potential sensitive areas include schools, residential areas, parks, dams, and recreational areas.

C. Facility Background Information

On December 2, 1985, the Montana Department of Health and Environmental Sciences and Montana Refining Company (MRC) signed a stipulation requiring MRC to obtain an air quality permit, and stipulated that a permit emission limitation of 4,700 tons per year CO would constitute compliance with ambient CO standards. MRC submitted this permit with the intentions of permitting its existing refining operations, including all equipment not already permitted.

On October 20, 1985, MRC was granted a general permit for their petroleum refinery and major refinery equipment located in Great Falls, Cascade County, Montana. The application was given **Permit #2161**.

The first alteration to their original permit was given **Permit #2161-A** and was issued on May 31, 1989. This alteration involved the addition of a deisobutanizer reboiler.

The second alteration was given **Permit #2161-A1** and was issued on March 12, 1990. This project involved the installation of one (1) 30,000-barrel gasoline storage tank and one (1) 40,000-barrel crude oil storage tank at the present facility. Both tanks were to be installed with external floating roof control.

The third alteration was given **Permit #2161-A3** and was issued on December 18, 1990. This alteration consisted of the installation of a Hydrofluoric Acid Alkylation Unit, internal floating roofs at existing storage tanks, which had fixed roofs, and a safety flare.

The fourth alteration was given **Permit #2161-04** and was issued on June 16, 1992. This alteration consisted of the installation of a sodium hydrosulfide (NaHS) unit at the existing Great Falls Refinery.

The NaHS unit receives refinery fuel gas (540,000 scf/day maximum rated capacity) containing hydrogen sulfide (H₂S) and reacts this fuel with a sodium hydroxide caustic solution to remove virtually 100% of the H₂S by converting it to sodium hydrosulfide (NaHS), a saleable product.

The resultant sweet fuel gas is burned, as before, in other process heaters; however, since the fuel gas contains virtually no H₂S, sulfur dioxide (SO₂) emissions from the process heaters, assuming no other changes, decrease by nearly 60 percent. There was no decrease in permitted SO₂ emissions from this permit because the refinery wanted to retain the existing permitted SO₂ emission limitations so it could charge less expensive, higher sulfur crude oil.

In the basic process, off-gases from product desulfurizing processes (fuel gases) are contacted with a caustic solution in a gas contractor. The resultant reaction solution is continually circulated until the caustic solution is essentially used up; NaHS product is then sent to storage. Make-up caustic is added to the process as required. The process requires a gas contractor, process heat exchanger, circulation pump, storage tanks for fresh caustic and NaHS product, 12 pipeline valves, 4 open ended valves, 21 flanges, and other process control equipment.

The only process emissions will be fugitive Volatile Organic Compounds (VOCs) from equipment (valves and flanges) in fuel gas stream service. To estimate unit VOC emissions, emission factors developed by EPA for equipment in gas vapor service with measured emissions from 0 to 1,000 ppm are used. With an aggressive monitoring and maintenance program, fugitive VOC emissions from valves and flanges will be within this 0 to 1,000-ppm range. Total annual fugitive VOC emissions from the sodium hydrosulfide unit are estimated to be 20 pounds per year.

The tank that is to be used to store NaHS product was in jet fuel service. When taken out of jet fuel service, this tank (#35) will no longer be a source of VOC emissions; the reduction in VOC emissions will be 2,270 pounds per year. Considering the 2,270-pound-per-year decrease due to tank #35 service change, the refinery will realize a net decrease in annual VOC emissions of 2,250 pounds or 1.1 tons per year.

The fifth alteration was given **Permit #2161-05** and was issued on October 15, 1992. This permit alteration was for the construction and operation of two (2) 20,000-barrel capacity aboveground storage tanks at its Great Falls Refinery. The new tanks contain heavy naphtha (#127) and raw diesel (#128).

Each tank is constructed of metal sections welded together and rests on a concrete ring wall foundation. External floating roofs with dual seals are installed on each tank for VOC control.

On April 6, 1993, MRC was granted **Permit # 2161-06** to construct and operate a hydrodesulfurization (HDS) unit and hydrogen plant. This sixth alteration was required to go through PSD review for NO_x and was deemed complete on February 22, 1993. The HDS project is designed to process 5,000 barrels per day of diesel/gas oil and to reduce the sulfur content to 0.05 weight percent. The reduction of sulfur in diesel fuel and gasoline are mandated by the 1990 Clean Air Act Amendments and must be accomplished by October 1993 and 1995, respectively. The current desulfurizer unit operated by MRC was limited in size and the throughput capacity to approximately 1,400 barrels per day.

This new HDS project consisted of an HDS process unit and heater, hydrogen plant with reformer heater, and the removal of storage tanks #40 through #43. Tanks #40 and #41, which currently process gas oil, would be discontinued. Tanks #42 and #43, which process raw diesel, would be discontinued. Tanks #44 and #111, which currently service naphtha, are now be used for gas oil. Tank #45, which services JP-4, is used for gas oil.

On July 28, 1993, **Permit #2161-07**, a modification to MRC's air quality permit, was issued to change the emission control requirements of Section II.A.4.d.i., titled "Pressure Vessels."

In a system where the valves relieve to atmosphere, rupture discs can prevent emissions in the event of relief valve leakage. In HF systems, they can provide some protection from acid corrosion on the relief valve and acid salt formation. Except where HF acid is present, rupture discs do not provide any additional protection; nor do they prevent any release of air contaminants in a closed relief system.

In heavy liquid service, rupture discs can be safety hazards by partial failure or leaking and changing, over time, the differential pressure required to provide vessel protection. Therefore, only pressure vessels in HF Acid service shall be equipped with rupture discs upstream of the relief valves and all except storage tanks shall be vented to the flare system.

Also, the allowable particulate emission limitation for MRC's FCC unit was corrected to reflect the maximum allowable emissions based on the process weight rule (ARM 17.8.310). The maximum allowable emissions were calculated to be 234.53 ton/year using a catalyst circulation rate of 125 ton/hour.

MRC requested a permit modification **#2161-08** to remove the alkylation unit and tanks #127 and #128 from NSPS status because they were erroneously classified as affected facilities under NSPS when originally permitted. This request for modification was submitted on August 11, 1993, and issued on January 6, 1994.

When MRC applied for the preconstruction permit to build the HF Alkylation Unit in 1990, it was presumed, since this unit was new to MRC, it automatically fell under new source performance standards (NSPS) as new construction. Subsequently, it has been determined that if a source is moved as a unit from a location where operation occurred (Garden City, Kansas) to another location, it must meet the definition of reconstruction or modification in order to trigger new source performance standards (NSPS) applicability.

The alkylation plant was originally constructed in Garden City, Kansas during 1959 - 1960 and moved, in its entirety, to Great Falls and installed. Since the unit was originally constructed before the NSPS-affected date of January 5, 1981, it does not meet the criteria for construction date of a new source under 40 CFR, Subpart GGG or Subpart QQQ.

The project does not meet the criteria under reconstruction because no capital equipment was replaced when the unit was relocated. The replacement work performed as the unit was moved amounted to pump seals, valve packing, bearings, small amounts of corroded piping, and some heat exchanger tubes and bundles, all of which are done routinely as maintenance. The VOC emitters, such as valve packing and pump seals, were upgraded to meet BACT.

Along the same line, tanks #127 and #128 were originally constructed at Cody, Wyoming in 1960 and relocated to Great Falls in 1993. The only change was the modification of the roof seals to double seals to meet BACT. This cost a total of \$15,000 for both tanks as compared to more than \$500,000 if two new tanks were to be built.

Also, on October 28, 1993, MRC submitted a permit application to alter the existing permit. This modification and alteration of the existing permit was assigned Permit #2161-08. MRC proposed to construct and operate a 3,500 barrel-per-day asphalt polymerization unit. The unit would enable MRC to produce a polymerized asphalt product that meets future federal specifications for road asphalt, as well as supply polymerized asphalt to customers that currently wish to use the product.

The proposed unit consists of two circuits: the asphalt circuit and the hot oil circuit. In the asphalt circuit, polymerization occurs in a 1,000-barrel steel, vented mix tank. Product blending and storage occurs in three steel, vented 1,000-barrel tanks identified as A, B, and C on the attached flow diagram. Existing Tanks 55 and 56 (3,000 barrels each) will remain in asphalt service and will be used for storage. In addition to the above equipment, the asphalt circuit also consists of four (4) pumps and approximately 47 standard valves. All the above equipment is in asphalt service and, except for Tanks 55 and 56, are new.

To maintain the asphalt at the optimum temperature in the storage and blending tanks, a hot circuit is utilized. Hot oil (heavy fuel oil) is heated in an existing permitted process heater (Tank 56 heater) and circulated through coils in the process tankage. No change in the method of operation of the heater was anticipated. A steel, vented hot-oil storage/supply tank is used to maintain the required amount of hot oil in the unit. In addition to the process heater and storage/supply tank, the hot-oil circuit consists of one (1) pump and approximately 56 standard valves. The above equipment is in hot-oil service and, except for the heater, is new.

An annual emissions increase of 7.3 tons per year of VOC is expected due to operation of the unit. The unit is only anticipated to be operated 6 months of the year. These emissions will occur from the vented hot-oil tank and the valves and pump in hot-oil service.

Permit #2161-09 was issued on September 6, 1994, and included a change in the method of heating three previously permitted polymer modified asphalt tanks. As previously permitted, these tanks were to have been heated utilizing circulating hot oil. The tanks are now heated individually using natural gas fired fire-tube heaters. This eliminated the hot-oil circuit, including the hot-oil storage tank, entirely.

Since the initial permit application for the modified asphalt unit, several small design changes have occurred involving the addition of a new 800-gallon wetting tank, which are in asphalt service. Also added was an output line from existing Tank #69 (Tall Oil). This output line added approximately 12 new valves and one new pump, all in Tall Oil service, to the unit. All other valves and pumps were designated to be in asphalt service. All VOC emissions from equipment and tanks in asphalt service were assumed to be negligible, since asphalt has negligible vapor pressure at the working temperatures seen in the unit.

Permit #2161-10, for the installation of an additional boiler (Boiler #3) to provide steam for the facility, was never issued as a final permit. On May 28, 1997, the Department of Environmental Quality (Department) received a letter requesting the withdrawal of the permit and the withdrawal was granted to MRC.

Permit #2161-11 was issued on January 23, 1998, for the installation of a vapor collection system and enclosed flare for the reduction of Hazardous Air Pollutants (HAPs) resulting from the loading of gasoline. This was done in order to comply with the gasoline loading rack provisions of 40 CFR 63, Subpart CC - National Emission Standards for Petroleum Refineries. A vapor combustion unit (VCU) was added to the truck loading rack. The gasoline vapors is collected from the trucks during loading then routed to an enclosed flare where combustion occurs. The result of this project was an overall reduction in the amount of VOCs and HAPs emitted, and a slight increase in CO and NO_x emissions.

Because MRC's Bulk gasoline and distillate truck loading tack VCU is defined as an incinerator under MCA 75-2-215, a determination that the emissions from the VCU will constitute a negligible risk to public health was required prior to the issuance of a permit to the facility. MRC and the Department identified the following hazardous air pollutants from the flare, which were used in the health risk assessment. These constituents are typical components of Montana Refining Company's gasoline.

1. Benzene
2. Toluene
3. Ethyl Benzene
4. Xylenes
5. Hexane
6. 2,2,4 Trimethylpentane
7. Cumene
8. Napthalene
9. 1,3, Butadiene

MRC demonstrated compliance with the negligible risk requirement.

MRC requested, via a letter dated August 13, 1997, permitted changes to administratively and technically correct Permit #2161-09. These changes were necessary as a result of the withdrawal of Permit #2161-10. The changes included correctly stating opacity limits relating to asphalt storage tanks, removing references to procedural rules, changing monitoring requirements for the HTU sour water stripper (SWS) and changing performance specifications for the continuous H₂S monitoring system. Because MRC had applied for a permit alteration on October 21, 1997, for the loading rack VCU the draft modification was addressed in the permit alteration request.

Permit **#2161-12** was not issued. MRC applied for a modification on February 18, 1998, and this action was given Permit #2161-12. On February 27, 1998 the Department notified MRC that the permitting actions requested would require an alteration and that a complete preconstruction permit application would be required.

Permit **#2161-13** placed enforceable emissions limits on the facility, both plant-wide and on the #1 and #2 boilers. The emission limits have been shown, through the use of EPA approved models, to protect the NAAQS for sulfur dioxide.

The continuous gas flow meters being installed in the vacuum heater and the crude heater were placed in the permit as a requirement. Also, the #1 and #2 boilers limits were updated to allow MRC more flexibility in their operations. The limits were originally placed on the boilers to keep MRC below the PSD permitting threshold. The new limits maintain the status below the PSD permitting threshold.

The monitoring location was identified in the permit's Attachment 1, Ambient Air Monitoring Plan. The current location was determined to be inappropriate after reviewing the modeling analysis, and the new location is approximately 1.2 km from its present location. The monitoring location was chosen based on the modeling analysis that was submitted and is required to provide confirmation of compliance with the State SO₂ standards. The Department will work with MRC for the final exact siting of the monitor. The method numbers for examination of water and wastewater were updated in Section II.C and Attachment 2. Permit #2161-13 replaced Permit #2161-11.

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on February 2, 1999.

On August 4, 2001, the Department issued **Permit #2161-14** for the installation and operation of five 1600-kW diesel-powered, temporary generators. These generators were necessary because of the current high cost of electricity. The generators would only operate for the length of time necessary for MRC to acquire a permanent, more economical, supply of power. Further, the generators are limited to a maximum operating period of 2 years.

Because these generators would only be used when commercial power is cost prohibitive, the amount of emissions expected during actual operation is minor. In addition, because the permit limits the operation of these generators to a time period of less than 2 years, the installation and operation qualifies as a "temporary source" under the PSD permitting program. Therefore, the proposed project does not require compliance with the Administrative Rules of Montana (ARM) 17.8.804, 17.8.820, 17.8.822, and 17.8.824. Even though the portable generators are considered temporary, the Department requires

compliance with BACT and public notice requirements; therefore, compliance with ARM 17.8.819 and 17.8.826 will be ensured. Finally, MRC is responsible for complying with all applicable ambient air quality standards.

On August 17, 2002, the Department issued **Permit #2161-15** to eliminate the summer boiler SO₂ emission limits (both the plant-wide and 24-hour average) and redefine the winter limits as year-round limits. The seasonal limits were originally placed in the permit to allow MRC more flexibility when operating the boilers. Both the winter and summer scenarios were supported by ambient air quality modeling performed prior to Permit #2161-13 being issued. The winter limit being redefined as a year-round limit does not represent an increase in SO₂ emissions from the boilers or any other emitting point. In addition, the Department removed requirements to determine and report NO_x emissions both from the crude heater (due to the old Sour Water Stripper (SWS)) and refinery wide, as these sources are not subject to NO_x emissions limitations. The requirements appeared to have been inadvertently applied through an administrative error. MRC already provides refinery-wide NO_x emissions as part of its annual emission inventory submission to the Department.

On March 19, 2003, the Department issued **Permit #2161-16** to include certain limits and standards associated with the Consent Decree lodged on December 20, 2001. In addition, the permit was updated with new rule references under ARM 17.8, Subchapter 7.

The Department received a request to modify air quality Permit #2161-16 on July 10, 2003, to change the emission testing schedule for the gasoline truck loading vapor combustion unit to be consistent with MRC's current operating permit. MRC requested to remove all references to a 7,000-barrel per day (bbl/day) limit of crude charge referenced in MRC's Title V Operating Permit. By removing the 7,000 bbl/day reference, MRC is now subject to the conditions in ARM 17.8.324.

D. Current Permit Action

The Department received a request to modify air quality Permit #2161-16 on July 10, 2003, to change the emission testing schedule for the gasoline truck loading vapor combustion unit (Section II.D.3.a) to be consistent with MRC's current operating permit. MRC also requested that the Department clarify that the 7,000-barrel per day (bbl/day) limit of crude charge (referenced in MRC's Title V Operating Permit) is no longer valid. Should MRC's normal processing exceed 7,000 bbl/day, MRC will be required to comply with ARM 17.8.324, as applicable. In a letter received by the Department September 30, 2003, MRC also requested to add three new asphalt tanks with associated natural gas heaters. Since the emissions from the three tanks is less than 15 tons/year the Department added the tanks under de minimis, ARM 17.8.745. In a letter dated May 3, 2004, MRC named Dana Leach as an alternate responsible official. The current permitting action also changes the dates when MRC shall submit to the Department the compliance monitoring reports required by Section V.D and the compliance certification report required by Section V.B. The current permit action updates the permit to reflect the changes.

E. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on March 29, 2004.

F. Compliance Designation

The Department on October 1, 2002, conducted an inspection. The inspection findings and all the material reviewed in the Department's files indicate that the facility is in compliance with the limits and conditions of their Montana Air Quality Permit.

SECTION II SUMMARY OF EMISSION UNITS

A. Facility Process Description

MRC refines petroleum hydrocarbons at a small refinery in Great Falls, Montana.

B. Emission Units and Pollution Control Device Identification

The following table includes the significant emitting units contained in the permit. MRC must comply with the applicable requirements for each emitting units listed below.

Emissions Unit ID	Description	Pollution Control Device/Practice
EU01	PLANT WIDE EMISSIONS	None
EU02	CRUDE UNIT	
EU02a	Crude Furnace (sour fuel gas)	None
EU02b	Vacuum Heater (sour fuel gas)	None
EU02c	Standard Gas Valves	None
EU02d	Standard Light Valves	None
EU02e	Drains	None
EU02f	Old Sour Water Stripper (SWS)	None
EU03	CATALYTIC POLY UNIT	
EU03a	Cat Poly Unit Valves	None
EU04	FLUID CATALYTIC CRACKING (FCC) UNIT	
EU04a	FCC Regenerator (process generated)	None
EU04b	FCC Preheater (sweet fuel gas)	None
EU04c	Standard Gas Valves	None
EU04d	Standard Light Valves	None
EU04e	Pumps Light	None
EU005	CATALYTIC REFORMER UNIT	
EU05a	Reformer Heater (sweet fuel gas)	None
EU05b	Naphtha Heater (sweet fuel gas)	None
EU05c	Standard Gas Valves	None
EU05d	Standard Light Valves	None
EU05e	Kerosene Heater (sweet fuel gas)	None
EU05f	Naphtha HDS Unit	None
EU05g	Kerosene HDS Unit	None
EU06	STORAGE LOADOUT UNIT	
EU06a	Product Loadout Facilities	None
EU06b	Pumps	None
EU06c	Storage LPG	None
EU06d	Standard Light Valves	None
EU06e	Storage Tank Farm	Floating Roofs
EU06f	Tanks Light	None
EU07	UTILITY UNIT	
EU07a	Wastewater Treatment Plant	None
EU07b	Boilers #1& #2 (sour fuel gas)	None
EU07c	Standard Gas Valves	None
EU08	ALKYLATION UNIT	
EU08a	Deisobutanizer Reboiler (sweet fuel gas)	None
EU08b	Standard Light Valves	None
EU08c	Pumps Light	None
EU08d	Oily Water Separator	None
EU09	HYDROGEN PLANT	
EU09a	Hydrogen Plant Reformer Furnace Stack (natural gas)	None
EU10	GASOLINE LOADING RACK	
EU10a	Gasoline Loading Rack	VCU
EU10b	Vapor Combustion Unit (VCU)	None
EU11	POLYMER-MODIFIED ASPAHLT (PMA) UNIT	None
EU12	COOLING TOWERS	None
EU13	SODIUM HYDROSULFIDE (NaHS) UNIT	None
EU14	DIESEL/GAS HYDROTREATER (HTU) UNIT (natural gas)	None

C. Categorically Insignificant Sources/Activities

The Administrative Rules of Montana (ARM) 17.8.1201(22)(a) defines an insignificant emissions unit as one that emits less than 5 tons per year of any regulated pollutant, has the potential to emit less than 500 pounds per year of lead or any hazardous air pollutant, and is not regulated by an applicable requirement other than a generally applicable requirement.

Emissions Unit ID	Description	Associated Unit(s)
IEU01	FCC Catalyst Heater	Cat Poly Unit
IEU02	Compressor Gas	Cat Poly Unit
IEU03	Reactor Catalyst Heater	Cat Reformer Unit
IEU04	Asphalt Heater #50	Storage Loadout Unit
IEU05	Asphalt Heater #55	Storage Loadout Unit
IEU06	Asphalt Heater #56	Storage Loadout Unit
IEU07	Asphalt Heater #110	Storage Loadout Unit
IEU08	Asphalt Heater #112	Storage Loadout Unit
IEU09	Loadout Facilities JP-4	Storage Loadout Unit
IEU10	Loadout Facilities Kerosene	Storage Loadout Unit
IEU11	Loadout Facilities Diesel	Storage Loadout Unit
IEU12	Loadout Facilities Jet A	Storage Loadout Unit
IEU13	Loadout Facilities Standard Valves Light	Storage Loadout Unit
IEU14	Loadout Facilities Standard Valves Heavy	Storage Loadout Unit
IEU15	Loadout Facilities JP-8	Storage Loadout Unit
IEU16	Loadout Facilities Naphtha	Storage Loadout Unit
IEU17	Loadout Facilities Fuel Oil #5	Storage Loadout Unit
IEU18	Loadout Facilities Crude	Storage Loadout Unit
IEU19	Loadout Facilities Asphalt	Storage Loadout Unit
IEU20	Drains	FCC Unit, Cat Poly Unit, Cat, Reformer Unit, Storage Load-out Unit, Alky Unit, NASH Unit, HTU Unit, Hydrogen Unit
IEU21	Relief Valves	Crude Unit, FCC Unit, Cat Poly Unit, Cat Reformer Unit, Storage Loadout Unit, Utility Unit, Alky Unit, NASH Unit, HTU Unit, Asphalt Polymerization Unit
IEU22	Open Valves	Crude Unit, FCC Unit, Cat Poly Unit, Cat Reformer Unit, Storage Loadout Unit, Utility Unit, NASH Unit, Hydrogen Unit
IEU23	Flanges	Crude Unit, FCC Unit, Cat Poly Unit, Cat Reformer Unit, Storage Loadout Unit, Utility Unit, Alky Unit, NASH Unit, HTU Unit, Hydrogen Unit, Asphalt Polymerization Unit
IEU24	Pumps Light	Crude Unit, FCC Unit, Cat Reformer Unit, Storage Loadout Unit, HTU Unit
IEU25	Storage Tanks Heavy	Storage Loadout Unit
IEU26	Storage Valves Heavy	Crude Unit, Cat Poly Unit, Reformer Unit, Storage Loadout Unit, HTU Unit, Asphalt Polymerization Unit
IEU27	Pumps Heavy	Crude Unit, Cat Poly Unit, Cat Reformer Unit, Storage Loadout Unit, HTU Unit, Asphalt Polymerization Unit
IEU28	Chemical Additive Pots	Crude Unit, Cat Poly Unit, Cat Reformer Unit, Storage Loadout Unit, Utility Unit, Asphalt Polymerization Unit
IEU29	Fuel Gas Open Valves	Utility Unit
IEU30	Fuel Gas Flanges	Utility Unit
IEU31	Fuels Gas Relief Valves	Utility Unit
IEU32	Flare Pilot Gas	Utility Unit
IEU33	Standard Valves Gas	FCC Unit, Alky Unit, NASH Unit, HTU Unit, Hydrogen Unit
IEU34	Lubricator	Cat Reformer Unit, HTU Unit
IEU35	Standard Valves Light	HTU Unit
IEU36	Standard Valves Hydrogen	FCC Unit, Cat Reformer Unit, HTU Unit, Hydrogen Unit
IEU37	Compressor Hydrogen	Cat Reformer Unit, HTU Unit
IEU38	Chemical Additive Tanks	Hydrogen Unit

SECTION III PERMIT CONDITIONS

A. Emission Limits and Standards

MRC shall comply with the general applicable requirements as well as some specific requirements. MRC shall comply with the 20% and 40% opacity limitations, which is dependent on the year of installation. MRC is exempt from the sulfur in fuel limitation of 50 gr/dscf because they process less than 10,000 barrels of crude per day. MRC shall comply with the sulfur in fuel rule for liquid or solid material of 1 lb/MMBtu. For those units that either do not fire this type of fuel or are incapable of firing the fuel, MRC shall verify non-use of the fuel on a semiannual basis.

MRC has plant-wide SO₂ limitations that must be complied with both on an annual basis of 1515 tons per year and a basis of 4.15 tons per day. MRC also has a plant-wide CO emission limitation of 4700 tons per year and 12.9 tons per day. MRC must also comply with specific SO₂, NO_x, and CO emission limitations on the Boilers #1 and #2 stack.

MRC has a gasoline loading rack with specific VOC, CO, and NO_x emission limitations. During permitting of the gasoline loading rack, MRC completed a risk assessment to demonstrate negligible risk to human health and the environment. MRC also has several sources listed in the permit that are subject to the requirements of 40 CFR, Subpart Kb, Subpart GGG, and Subpart QQQ and 40 CFR 63, Subpart CC. MRC is also subject to 40 CFR 61, Subpart FF. If at anytime from the Date of Lodging of the Consent Decree MRC is determined to have a total annual benzene (TAB) equal to or greater than 10 Mg/yr, MRC, as applicable, shall comply with the compliance option set forth at 40 CFR 61.342(e).

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in operating permits.

MRC shall operate and maintain a H₂S monitor on the sour gas fuel system at the facility to demonstrate compliance with the plant-wide SO₂ emissions limitations. Daily calibration checks and quarterly CGAs will be required on the monitor. The calibration checks and CGAs will include two points with the high end point being no greater than 5% to obtain a linearity check on the monitor and to confirm the accuracy of the data being collected. The zero point will not be required because of the manufacturer information that was provided demonstrating the monitor to be zero when it reads zero. Also, the gas chromatograph analyses will be done when the sour fuel gas monitor is operating out of range. Operation and maintenance of the monitor will be maintained as required by Permit OP2161-01. Compliance with the sweet gas fuel system will be determined by certification of the sweet fuels gas streams. The sweet gas fuels streams have been defined as the reformer stabilizer overhead stream, the natural gas stream, and the propane and butane streams. Compliance demonstration for the heaters that are limited to 160 ppm sulfur concentration in the fuel on a dry basis is done on a wet basis. MRC is required to maintain an ambient air monitoring program in accordance with Permit OP2161-01. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor for all emissions units. Furthermore, it does not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for a insignificant emissions unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (**i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by MRC to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, MRC may elect to voluntarily conduct compliance testing to confirm its compliance status.

Permit OP2161-01 requires testing for some specific units. The FCC Unit and the boilers #1 and #2 stack are required to test to demonstrate compliance with the SO₂, NO_x, and CO emission limitations. The standard Reference Method test shall be complied with as well as additional testing requirements for the boilers #1 and #2 stack. MRC shall test the boilers #1 and #2 stack to demonstrate compliance with the plant-wide sulfur limitation and boiler stack emission limitations.

MRC will collect a sample of sour fuel gas within one hour of determining the sour gas H₂S monitor is out of range and conduct a gas chromatograph analysis on the sample. After the initial sample, MRC shall collect samples and conduct analyses, as described above, every 4 hours until the monitor has returned to valid conditions. Also, MRC shall submit a SOP/QA manual for the gas chromatograph within 180 days of the final/effective permit issuance.

Also, an annual testing, daily calibration checks (with three points) and quarterly certified gas analysis are required for the H₂S gas monitor. All tests shall be done in accordance with the Montana Source Test Protocol and Procedures Manual or another method approved by the Department.

D. Recordkeeping Requirements

MRC is required to keep all records listed in the operating permit as a permanent business record for at least five years following the date of the generation of the record. The records are required to be maintained under MRC's control and available to Department upon request within a reasonable amount of time.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit and Section V of the operating permit "General Conditions" explains the reporting requirements. However, MRC is required to submit quarterly, semiannual and annual monitoring reports to the Department and to annually certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation. The quarterly emission reports shall be a consolidated emissions report and QA/QC results in one document to the Department. The report shall be in hard and electronic form with the electronic format in ASCII and with a template of each set of data. The quarterly emission report shall be submitted to the Department with the compliance monitoring report on or before January 31 and July 31 and additionally on or before April 30 and October 31.

To eliminate redundant reporting, a source may reference previously submitted reports (with at least the date and subject of the report) in the semiannual and annual reports instead of resubmitting the information in monthly, quarterly, and/or other reports. However, a source must still certify continuous or intermittent compliance with each applicable requirement annually.

F. Public Notice

In accordance with ARM 17.8.132, a public notice was published in the *Great Falls Tribune* on or before May 5, 2004. The Department provided a 30-day public comment period on the draft operating permit from May 5, 2004, to June 4, 2004. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The comments and issues received by June 4, 2004, will be summarized, along with the Department's responses, in the following table. All comments received during the public comment period will be promptly forwarded to MRC so they may have an opportunity to respond to these comments as well.

Summary of Public Comments

Person/Group Commenting	Comment	Department Response
No Comments		

G. Draft Permit Comments

Summary of Permittee Comments

Permit Reference	Permittee Comment	Department Response
No Comments		

Summary of EPA Comments

Permit Reference	EPA Comment	Department Response
No Comments		

SECTION IV NON-APPLICABLE REQUIREMENT ANALYSIS

Section IV of the operating permit Non-applicable Requirements contains the requirements that the Department determined were non-applicable. The following table summarizes the requirements that MRC identified as non-applicable and contains the reasons that the Department did not include these requirements as non-applicable in the permit.

Applicable Requirement	Reason
Federal Requirements	
40 CFR 72 Permit Regulation (Acid Rain Permit) 40 CFR 73 Sulfur Dioxide Allowance System 40 CFR 74 Sulfur Dioxide OPT-Ins 40 CFR 75 CEM (Acid Rain Emission Monitoring) 40 CFR 76 Acid Rain Nitrogen Oxides Emission Reduction Program 40 CFR 77 Excess Emissions (Acid Rain) 40 CFR 78 Appeal Procedures for Acid Rain Program	These regulations do apply to this facility.
40 CFR 82 Protection of Stratospheric Ozone (except Subpart F)	These rules contain requirements for processes, equipment, or activity that is not used at the facility.
FCAA Title I Part D Plan Requirements for Non-Attainment Areas FCAA Section 111(d)	These rules have specific requirements that may become relevant to a major source during the permit span.

SECTION V FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

As of the issuance date of Operating Permit OP2161-01, MRC is required to comply with the requirements of 40 CFR 63, Subparts CC, DDDDD compliance to be determined, GGGGG compliance 10/06, and EEEE compliance 2/07.

B. NESHAP Standards

As of the issuance date of Operating Permit OP2161-01, MRC is required to comply with the requirements of 40 CFR 61, Subpart FF.

C. NSPS Standards

As of the issuance date of Operating Permit OP2161-01, MRC is required to comply with the requirements of 40 CFR 60, Subparts Kb, J, VV, GGG, and QQQ.

D. Risk Management Plan

MRC has more than a threshold quantity of a regulated substance in a process, and was required to comply with 40 CFR 68 requirements no later than June 21, 1999; three years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later. MRC has met the requirements of 40 CFR 68 for the Risk Management Plans. EPA received MRC's Risk Management Plan on August 20, 1999.